



European Construction Sector Observatory

Policy fact sheet

Czech Republic

Implementation of the Czech BIM Strategy

Thematic objectives 3, 4 & 5

December 2020

In a nutshell

Implementing body	Ministry of Industry and Trade (MIT), with the support of other ministries
Key features & objectives	Defining and implementing a strategy to promote the uptake of BIM (Building Information Modelling) in the Czech construction sector.
Implementation date	2017 – 2022 ¹
Targeted beneficiaries	Czech construction sector value chain
Targeted sub-sectors	Construction companies, public sector
Budget (EUR)	491,140 (CZK 13 million) in 2018 ²
Good practice	★★★★☆
Transferability	★★★★★

Construction is a strategic sector for the Czech economy; however, it is also one of the least digitalised, with relatively stagnant productivity rates³.

The main shortcomings at the root of these problems include low levels of cooperation, poor information management and insufficient investment in technology and R&D. These difficulties not only affect the private sector but can have a significant impact on public finances and their risk exposure, as public projects can incur budget overruns⁴.

In 2016, the Czech government decided to launch a nationwide BIM (Building Information Modelling) Implementation Strategy to tackle these challenges. BIM supports the collection, management and use of construction data from all stakeholders throughout the entire construction lifecycle – from design to construction, building management, reconstruction and demolition. The advantages of

using BIM include cost and time savings, risk reduction and a more sustainable approach to construction.

The value of BIM to the public sector was officially recognised by the European Union in 2014, with the introduction of the European Directive on Public Procurement 2014/24/EU⁵.

It aimed to promote the use of BIM in the public sector to improve cost-effectiveness and encourage its use in the private sector. The development of the Czech BIM strategy was based on this and other European BIM strategies. More advanced BIM strategies implemented in Germany, Scandinavia and the United Kingdom⁶, were key sources of inspiration.

The Czech Republic's BIM Strategy is currently being implemented through to 2022. It is composed of key building blocks such as the development of data and public procurement standards for BIM and the implementation of BIM projects.

Implementation is managed by a number of government ministries under the coordination of a 'BIM Concept' department, which was created as a central strategic office at the Czech Standardisation Agency (the ČAS agency).

BIM strategy implementation through to 2018 (first phase) was deemed highly successful by both the implementing authorities and stakeholders⁷. The second and third phases also seem to have achieved most of their objectives, although final results are pending publication. 37 of the 38 measures being implemented are on track, as planned. However, some changes to the implementation schedule are expected to be announced⁸.

Overall, the implementation of the BIM strategy is progressing well and on schedule. It has produced a number of good practices, many of which are highly transferable.

1.

General description

The Czech Government adopted Resolution N° 958 in November 2016, which acknowledged the importance of the BIM method for the Czech construction sector and recommended a proposal for further action to support its implementation.

Following the resolution, the Ministry of Industry and Trade (MIT) developed a strategic concept document for the introduction of the BIM method in the Czech Republic. It provided guidelines for the implementation of a national strategy to promote the use of BIM⁹.

The BIM Strategy defines a transversal and integrated implementation plan that establishes clear rules for the creation, management and use of information and data in the Czech construction.

Its ultimate objective is to create a legal obligation to use the BIM method for public contracts above the financial limit of the Public Procurement Act, and for construction works financed from the public budget, to encourage the uptake of BIM in the private sector¹⁰.

The strategy provides a ten-year vision for BIM implementation and use in the Czech Republic, and a four-year action plan from 2018 to 2022.

Implementation oversight is assigned to MIT in cooperation with the Office for Technical Standardisation, Metrology and State Testing (ÚNMZ). The 'BIM Concept' department at the ČAS agency is responsible for coordinating implementation activities. A number of government ministries are also involved, including the Ministries of the Interior, Finance, Culture, Education, and Regional Development, among other agencies.

Working groups are the basic building blocks of the ČAS 'BIM Concept' department. Each integrate a group of experts whose task is to gather interesting and innovative solutions obtained from Czech and international practices across a range of different

areas¹¹. A total of seven working groups (WGs) have been established and tasked with implementing a total of 38 tasks divided into six thematic areas.

WG1: Pilot projects¹²

WG1 is tasked with promoting projects that use BIM methodologies to test their feasibility in practice. Two types of projects are promoted, as shown in Table 2. Both types encourage sharing good and bad practices to support learning.

Table 1: Types of projects

Type	Description
Pre-Pilot Projects (PrPP)	PrPPs test methodologies that are still under development. WG1 helps project participants to develop their BIM methodology and link their work with other ČAS agency activities where collaboration can be of help.
Pilot Projects (PP)	PPs test methodologies at a very advanced stage of elaboration. Participants in BIM pilot projects (PP) have access to available versions and are able to validate the methodologies. They then provide feedback on their implementation experience to support further improvement.

Source: ConceptBIM.cz¹³

WG1 also develops change management methodologies to help with the gradual adaptation of BIM.

WG2: Public procurement, project management and contracts¹⁴

WG2 is responsible for developing the recommended procurement model for the use of the BIM method in public contracts. The work involves the standardisation of public procurement project management practices and contractual conditions.

WG3: Data and information standards¹⁵

WG3 focuses on BIM technology standardisation. Its main activities are to develop a data standard, related requirements and methodologies for BIM. Standards are being developed in accordance with the needs of contracting authorities. They take into account current and upcoming legislation, the use of software tools, and common practices in the Czech construction industry. They are also in alignment with the work being done by European and international BIM standardisation groups.

WG4: Valuation documents¹⁶

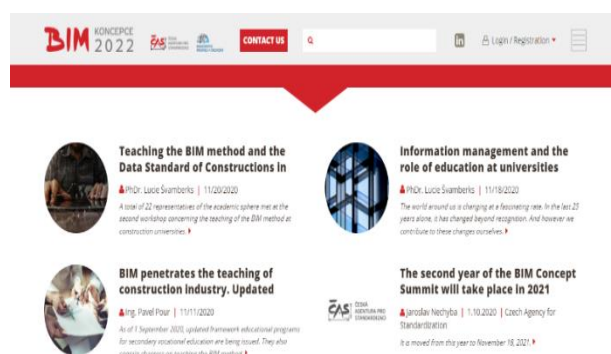
The main goal of WG4 is to create binding standards for the evaluation of public procurement construction projects involving BIM, ensuring transparency, efficiency and uniformity. These standards will determine how to evaluate and compare buildings and projects in relation to a new source of information: the BIM construction data model.

WG5: Education and PR¹⁷

WG5 works with the media and the professional public to raise awareness of the benefits of using the BIM method in the construction sector.

Awareness raising is supported by the organisation of seminars and conferences and the launch of online channels for the professional public. Examples include the ConceptBIM.cz portal, as shown in Figure 1, as well as social networks and other channels.

Figure 1: ConceptBIM.cz portal



Source: ConceptBIM.cz¹⁸

WG5 also organises educational activities to provide training on the methodologies and standards developed.

WG6: Terminology and standards¹⁹

WG6 is tasked with establishing a standardised terminology for BIM concepts. The purpose is to provide a common and easy to understand definition of the terminologies used in methodologies and outputs. The terminology standards are to be used in virtually all BIM method implementation measures in the Czech Republic. This group is therefore seeking to identify how BIM terminology is used across different professions and disciplines, and in different phases and contexts. The aim is to identify differences and avoid misunderstandings.

WG7: Inter-ministerial coordination group²⁰

In addition to the six thematic working groups, WG7 is responsible for coordinating the implementation of the BIM strategy and the activities of the working groups. WG7 was established at the Government Council for Construction of the Czech Republic.

WG7 is chaired by the Ministry of Industry and includes representatives of the all involved ministries, as well as non-governmental professional organisations and chambers, such as the Association of Entrepreneurs in Construction, The Chamber of Architects, the Chamber of Construction Engineers, and the Expert Council for BIM (CzBIM).

2.

Achieved or expected results

The Ministry of Industry and Trade was originally required to inform the government once a year on the implementation of the 'Concept' document²¹. However, this requirement was later waived as part of an effort to reduce the administrative burden. Performance evaluations are now conducted every two years²². The most recent results were published in September 2018. They cover the first monitored period of implementation, from October 2017 to August 2018.

Performance in 2017-2018 was successful. This conclusion concurs with the views of MIT and was approved by stakeholders²³.

The **results achieved in 2017-2018** include²⁴:

- All tasks planned to start in the first half of 2018 were successfully launched. Implementation of 22 out of a total of 38 measures had already begun and some were ahead of schedule. The main highlights during this period were:
 - **Selection and launch of projects** for both land use and transport construction;
 - The **translation of selected international BIM standards** was initiated, with a view to developing Czech standards;
 - A **memorandum of understanding** was negotiated and signed with the main providers agreeing on the adoption of Industry Foundation Classes (IFC) as a standard data model;
 - The Ministry of Regional Development launched **consultations on the recodification of the public construction law**;
 - Measure N°1, which aimed to establish a Construction 4.0 Committee under Alliance Society 4.0, was the only measure that did not progress as initially planned. The Committee was not established. Instead, materials related to this topic were included in the Action Plan for Company 4.0. Overall, it was a minor change that did not affect the implementation of key measures;

- Six working groups coordinated by the 'BIM Concept' department at the ČAS Agency and twelve additional working groups to coordinate implementation with other ministries were set up;
- **Cooperation with professional organisations and educational institutions** was initiated. Very positive responses were reported, especially in the field of education;
- Representatives from MIT and the ČAS agency organised two professional seminars and spoke at 14 BIM-related conferences. A number of articles on BIM and the approval of the 'BIM Concept' were published in four Czech outlets and in one Slovak magazine.

The performance evaluation for the period spanning 1 September 2018 to 30 June 2020 is expected to be published at the end of 2020 or in early 2021.

The **preliminary results shared by MIT** include²⁵:

- **37 of the 38 measures** planned by the National BIM Strategy are **on track, as planned**. Four are now concluded. The others are progressing in line with the annual plan;
- The focus during the period was on intensive discussions and **preparation of BIM methodologies and standards**, as well as the launching of a **BIM awareness campaign** through several events and media outlets;
- **For some measures, the original plans have been updated**. These are mainly adjustments to the timetable related to factors such as the need to adjust to legislative changes, to align with the Digital Czech Republic v3.0 Strategy (launched in 2018), and to update standards to reflect recent changes agreed on by the EU BIM Task Group or the European standardisation organisation CEN, with which the Czech Republic is collaborating. Although the specific measures that will be affected are not yet public, MIT confirms that

they do not significantly affect the substance of the strategy. They are required to ensure compatibility with European classification systems;

- The **next period** will be marked by the **publication of methodologies and launch of pilot projects to validate those methodologies.**

A key success in this period was the organisation of an international BIM summit in November 2019, which was attended by over 240 Czech and international participants from the public sector, government, experts and business community.

The Czech Ministry of Industry and Trade has concluded that implementation of the BIM strategy has been successful thus far. With one minor exception, all activities were implemented as scheduled.

Although some changes to the strategy and schedule are expected, their purpose will be to ensure compatibility with European classification systems. This will ultimately help to make the Czech construction sector more competitive.

3.

Perspectives and lessons learned

An assessment of international best practices has enabled MIT to adapt and integrate tried and tested best practices into the National BIM Strategy.

An excellent example is the thorough review process established for all working group documents and outputs. Outputs are presented to a wider selected professional public for 'opposition proceedings'. Outputs can only be submitted by the ČAS agency to MIT for approval once stakeholder-initiated proceedings have been settled. Outputs are then forwarded to MIT for amendments, further recommendations, changes in legislation, etc. This process is based on similar plans for the introduction of BIM in other European countries²⁶.

Strong stakeholder engagement throughout the strategy implementation process is essential and pays dividends.

Stakeholder collaboration and approval has been at the core of implementation activities and the performance evaluations. As well as participating in the working group review process, stakeholder feedback is sought out through periodic workshops and by involving industry associations in the WG7 Coordination Group.

According to the Head of Development at MIT, reaching agreements required a lot of effort. However, the stakeholder engagement approach has enabled MIT to align the strategy with the needs of the construction sector²⁷. Those needs include standardised contracts, a single data standard, and close cooperation in pilot projects.

Communication channels such as the 'BIM Concept' website (www.koncepceBIM.cz) have also provided access to stakeholder feedback and are helping to support collaboration. Through these channels, any registered user can submit their views on specific

agendas, working group activities and outputs, or published articles. The 'BIM Concept' department at MIT responds to all received feedback within a reasonable time.

The 'BIM Concept' website also features a blog that is open to all registered users, giving experts the opportunity to publish their opinions and share and comment on their experiences and practices. Focused workshops for various target groups complement these communication actions²⁸.

The coordination of smaller units of work by a dedicated 'BIM Concept' department at MIT has proven effective.

The successful implementation of a national BIM strategy requires the involvement of many areas of expertise, from communication to regulation to data standards. Smaller units of work allow for very focused work on many key areas, but they also pose a coordination challenge. An appropriate coordination structure is therefore essential to link those units and ensure effective communication among them²⁹.

Ensuring that stakeholders and the public are regularly informed about the progress of implementation activities is important, even if it is not required by the government.

Stakeholder engagement, input and buy-in are central to the successful implementation of the BIM strategy. According to the Head of Development at MIT, it is therefore vital to regularly communicate how implementation activities are progressing, as well as any changes that have been made and why they have been made. It is also important to communicate the results of performance evaluations, whether or not they are published, to ensure continued stakeholder involvement and buy-in³⁰.

4.

Conclusion and recommendations

The implementation of the Czech Republic's BIM Strategy is proceeding as planned, according to the latest performance evaluation data.

The success of the BIM implementation activities is founded on an inclusive approach to stakeholder engagement. A wide range of public and private sector stakeholders have been brought together to guide the design and application of BIM methods and standards. International best practices and international collaboration are also informing the process. The initiative has set up working groups to deliver 38 individual measures and is engaged in a significant coordination effort across government departments.

All but one of the 38 planned measures were launched on schedule. Four have already been completed and 33 are progressing on track with the delivery timetable.

Focus is currently on the development of BIM methodologies and standards, as well as awareness campaigns being delivered at events and through media outlets.

Pilot projects will be launched in the near future to test and validate the Czech BIM methods and standards.

Looking forward, one main recommendation suggested to help improve the implementation of the Czech BIM Strategy is:

Stakeholders should be regularly informed of the ongoing progress of BIM implementation activities, even if it is not required by the government. Regular information and updates would be particularly beneficial to stakeholders that are not directly involved in the implementation programme.

They rely on public information to enable them to plan effectively, adapt their processes and build capacity – i.e. to invest in digital solutions, technologies and skills development. Digital transformation requires careful planning and has considerable time and cost implications. Companies therefore need foresight to enable them to prepare for the change that the use of BIM requires.

Overall, the Czech BIM Strategy is rated a '4-star good practice measure' on a scale of 1 (low) to 5 (high).

This score is based on the BIM best practice approach adopted as the foundation of the Czech national strategy. It is also based on the good progress being made to date, with all but one of the constituent measures progressing as planned. The award of a higher score is dependent on the results achieved by the pilot projects and the extent to which the Czech BIM methods and standards are validated in practice. Those results are not expected to be assessed until 2022, as part of a future performance evaluation. Improved and more frequent communication of implementation progress would further support a higher good practice score.

The Czech BIM Strategy is rated a '5-star transferable measure' on a scale of 1 (low) to 5 (high).

The strategy development approach is based on an assessment of international best practices adopted by other countries. It is also founded on collaboration with EU and international groups working on BIM standardisation. This approach was adopted to enable the incorporation of tried and tested best practices and to ensure that the Czech strategy is aligned with international standards. This is an important strategic approach that is designed to benefit Czech construction companies. This approach could easily be replicated in another national context.

The stakeholder engagement approach adopted by the Czech measure is also very transferable, providing that appropriate communication channels are put in place to reach and engage with stakeholders. The key is to engage with them as early as possible and involve them throughout the

design and implementation process. Their involvement and input will help to strengthen the quality of output and ultimately achieve national acceptance, adoption and use of BIM methodologies and standards.

Endnotes

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